

# ABSTRACT OF THE DISCLOSURE

A method is disclosed for operating a synchronous space division multiple access, code division multiple access communications system. The method operates, within a coverage area of a base station (BS) or radio base unit (RBU) having a multi-element antenna array, for estimating a SSV for individual ones of a plurality of active subscriber stations (SSs) and assigns a spreading code to a subscriber station (SS) that minimizes the similarity of the determined SSVs of the SSs in a spreading code set. A metric used to measure the similarity of the spatial signature vectors of the SSs comprises the squared sum of the inner products of same code SSs' SSV with a current SS's SSV. The step of assigning includes calculating the magnitude of the squared inner product of the SSVs of all pairs of active SSs; using the calculated values for determining  $\xi_n(c)$  for each spreading code that is not already used some specified maximum number of times; and assigning to a SS the spreading code with a minimum  $\xi_n(c)$ .

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